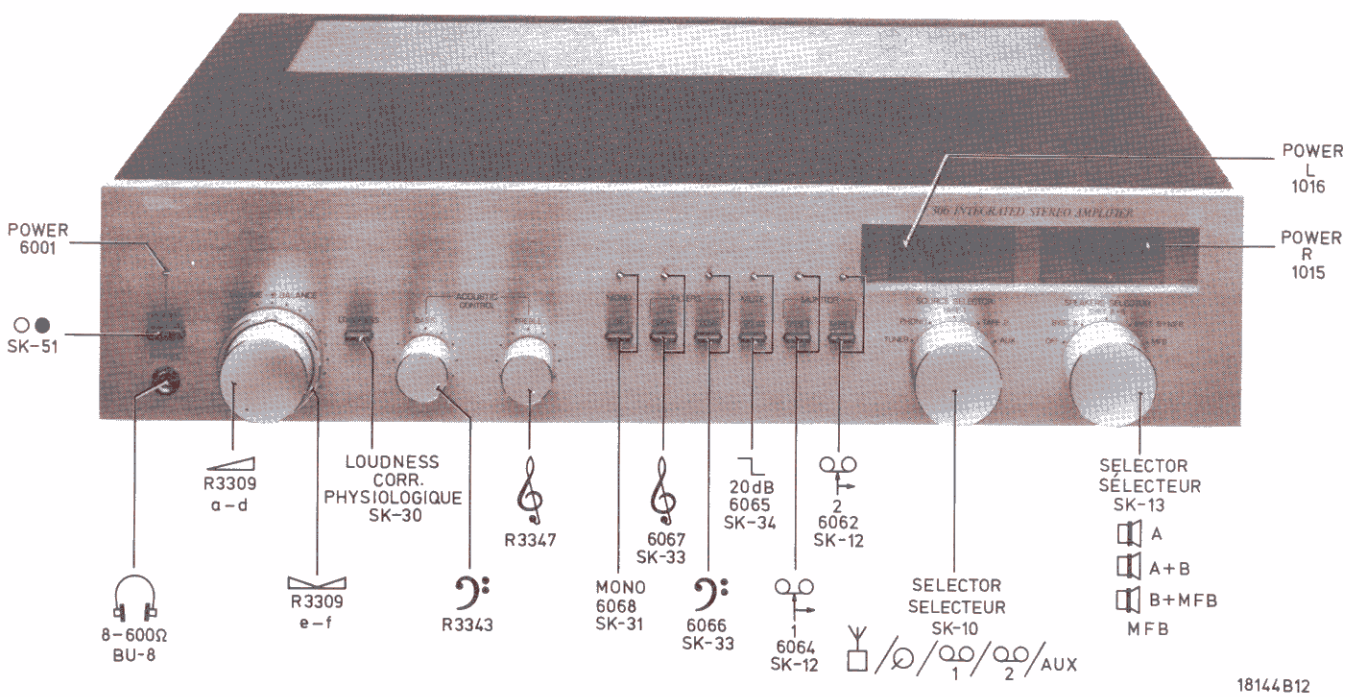
A 22AH306/00/15

Service
Service
Service

Service Manual



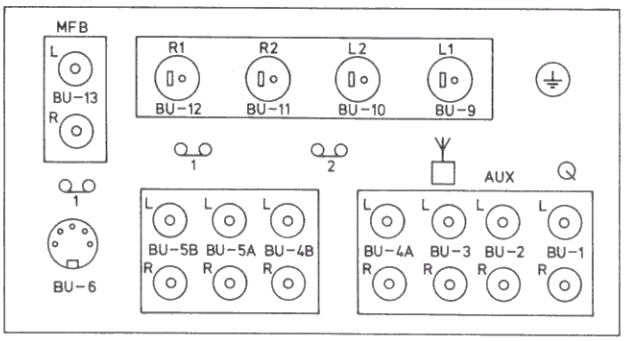
Documentation Technique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Serviço

Subject to modification

4822 725 13285

Printed in The Netherlands

PHILIPS



BU-1	Q	2,5 mV	(47 kΩ)
BU-2	AUX	150 mV	(100 kΩ)
BU-3		150 mV	(100 kΩ)
BU-4A		150 mV	(100 kΩ)
BU-4B		150 mV	(2,5 kΩ)
BU-5A		150 mV	(2,5 kΩ)
BU-5B		150 mV	(100 kΩ)

BU-6		1,4	0,25 mV/kΩ	(220 kΩ)
		3,5	150 mV	(100 kΩ)
BU-8			350 mV	(8 Ω)
			2,5 V	(1 kΩ)
BU-9		L1	60 W	(8 Ω)
BU-10		L2		
BU-11		R2		
BU-12		R1	60 W	(8 Ω)

(GB)

For more detailed technical specifications please consult commercial documentation.

(F)

Pour l'obtention de données techniques plus détaillées veuillez consultez la documentation commerciale.

(I)

In modo da ottenere dati tecnici piu particolareggiati, vi preghiamo di riferirvi alla documentazione commerciale.

(NL)

Voor meer uitgebreide technische specificaties gelieve de commerciele dokumentatie te raadplegen.

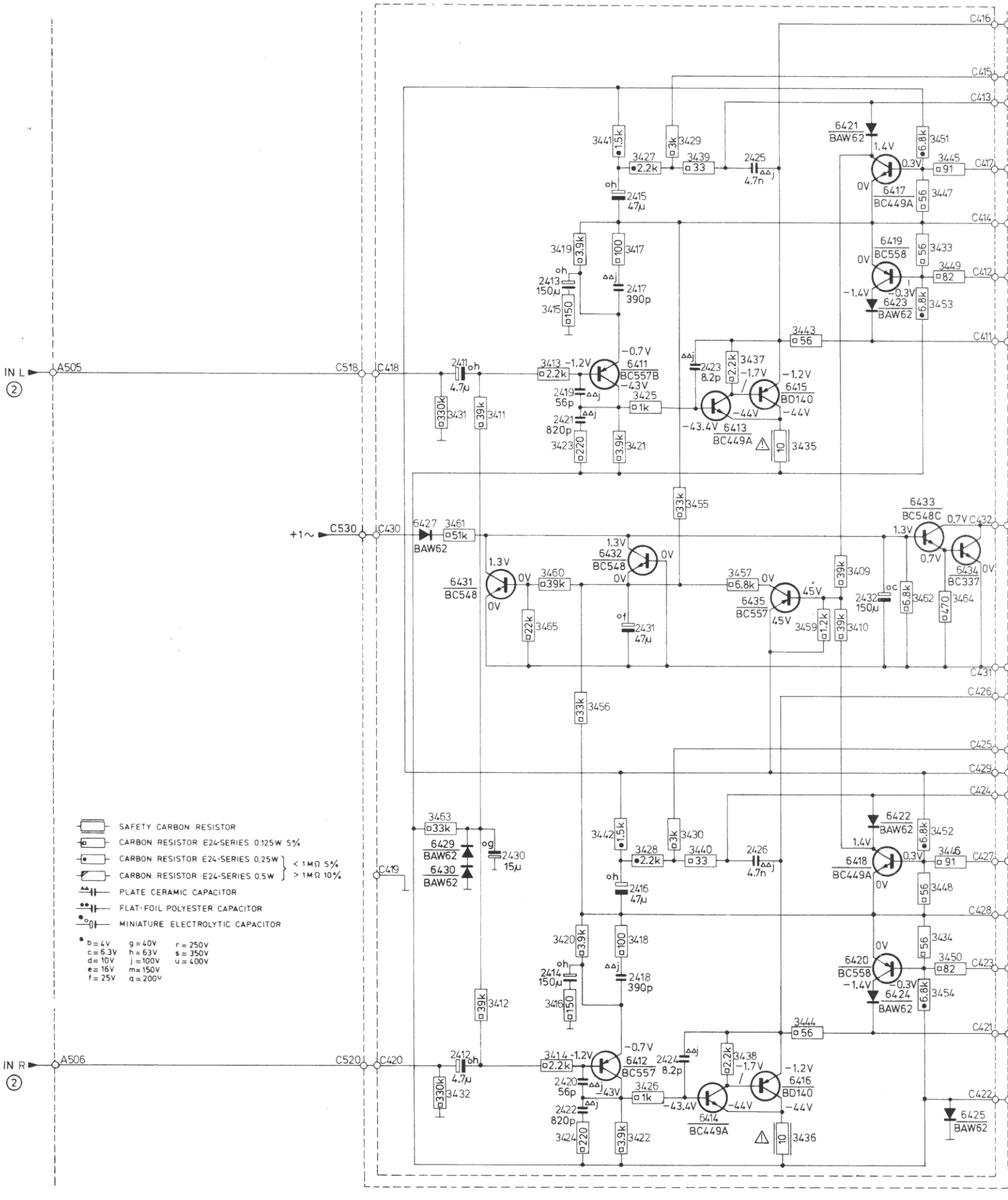
(D)

Für eine mehr detaillierte technische Spezifikation verweisen wir auf die kommerzielle Dokumentation.

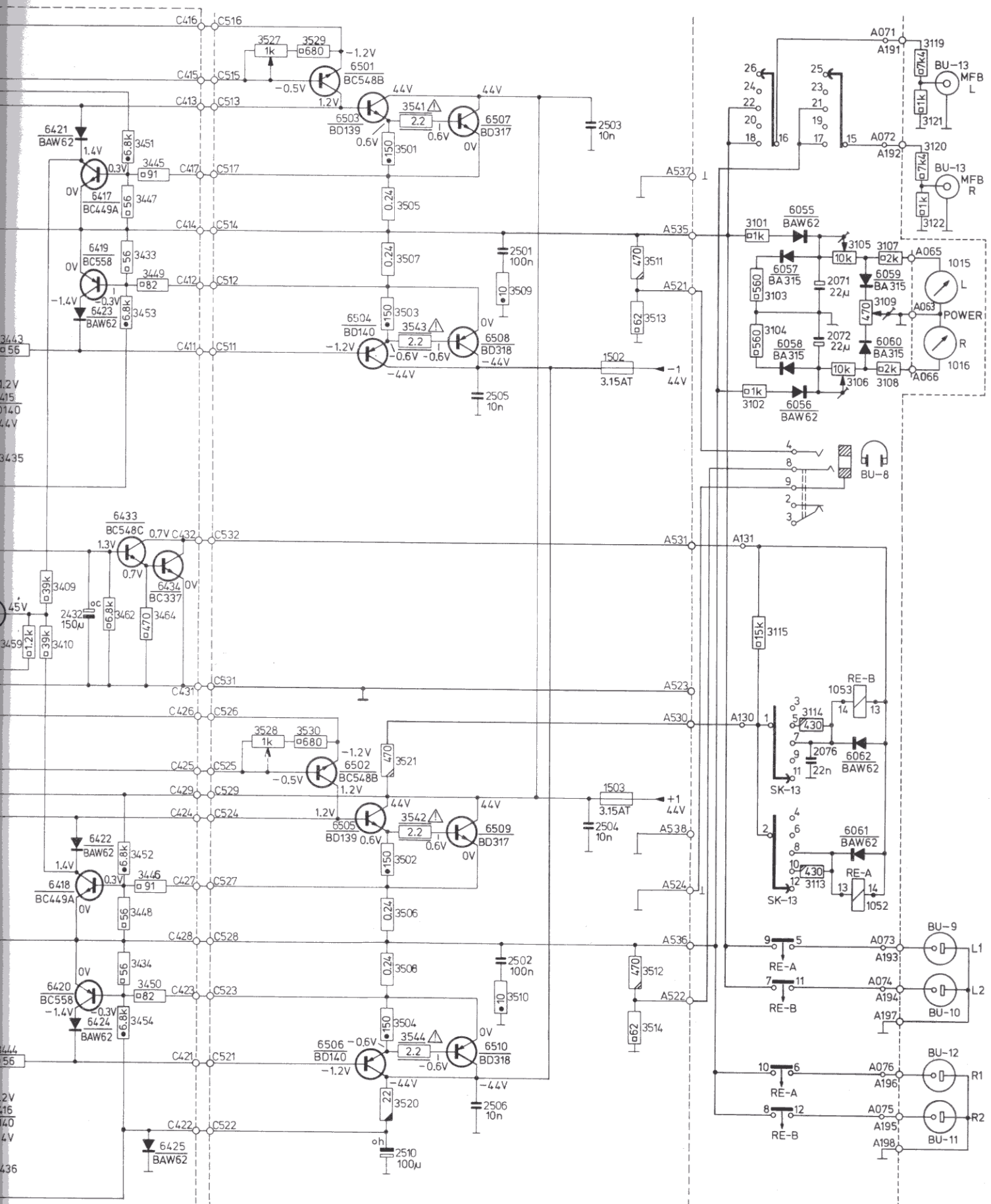
(S)

För mera detaljerade tekniska data se kommersiel dokumentation.

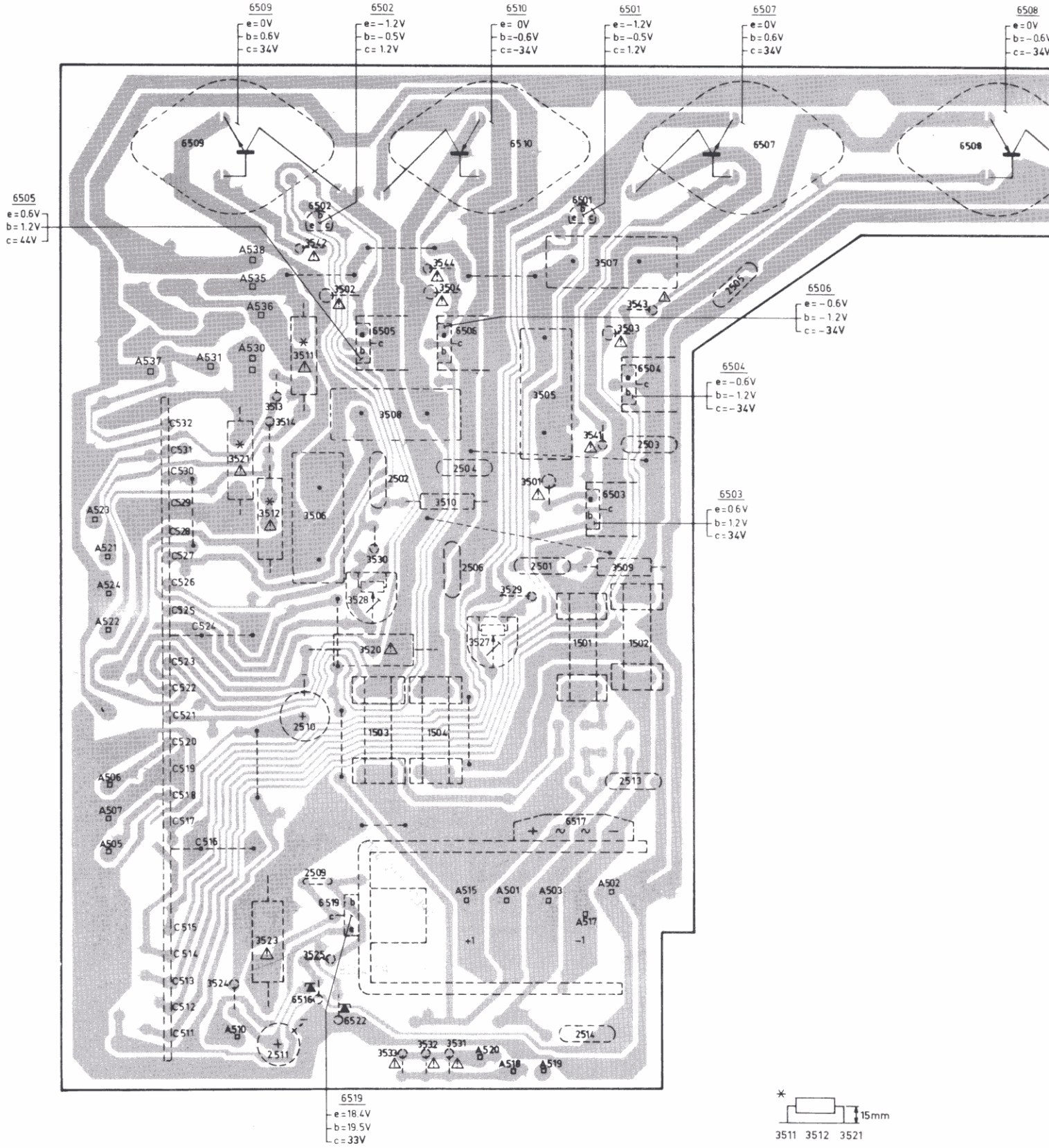
M	6427.6429.6430 643		6411.6412.6432	6413÷6416	6435	6421÷6425.6417÷6420.6433	6434		
C	2411.2412	2430	2413÷2422.2431	2423÷2426	2432				
R	3463.3432.3431.3461.3465.	411÷3424.3460.3456	3455.3425÷3430.3436÷3444.3457.3459.3410.3409.3462	3445÷3454.3433.3434.346					



5 6421÷6425.6417÷6420.6433	6434	6501÷6506	6507÷6510	1502.1503	6055÷6058.1053.1052.6059÷6062	
2432		2510	2505.2506.2501.2502	2503.2504	2076.2071.2072	
59.3410.3409.3462	3445÷3454.3433.3434.3464	3527÷3530	3520.3521.3501÷3508.3541÷3544.3509.3510	3511÷3514	3101÷3104.3113÷3115.3105÷3109	3119÷3122



17555E12


6509
e = 0V
b = 0.6V
c = 34V
6502
e = −1.2V
b = −0.5V
c = 1.2V
6510
e = 0V
b = −0.6V
c = −34V
6501
e = −1.2V
b = −0.5V
c = 1.2V
6507
e = 0V
b = 0.6V
c = 34V
6508
e = 0V
b = −0.6V
c = −34V
6505
e = 0.6V
b = 1.2V
c = 44V
6506
e = −0.6V
b = −1.2V
c = −34V
6504
e = −0.6V
b = −1.2V
c = −34V
6503
e = 0.6V
b = 1.2V
c = 34V
6519
e = 18.4V
b = 19.5V
c = 33V
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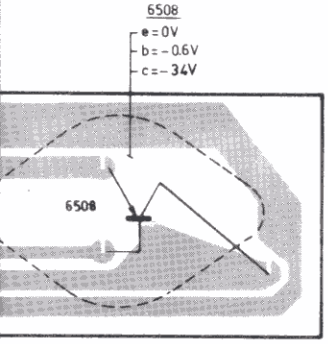
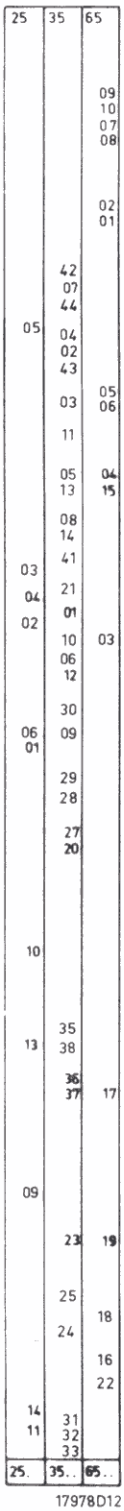
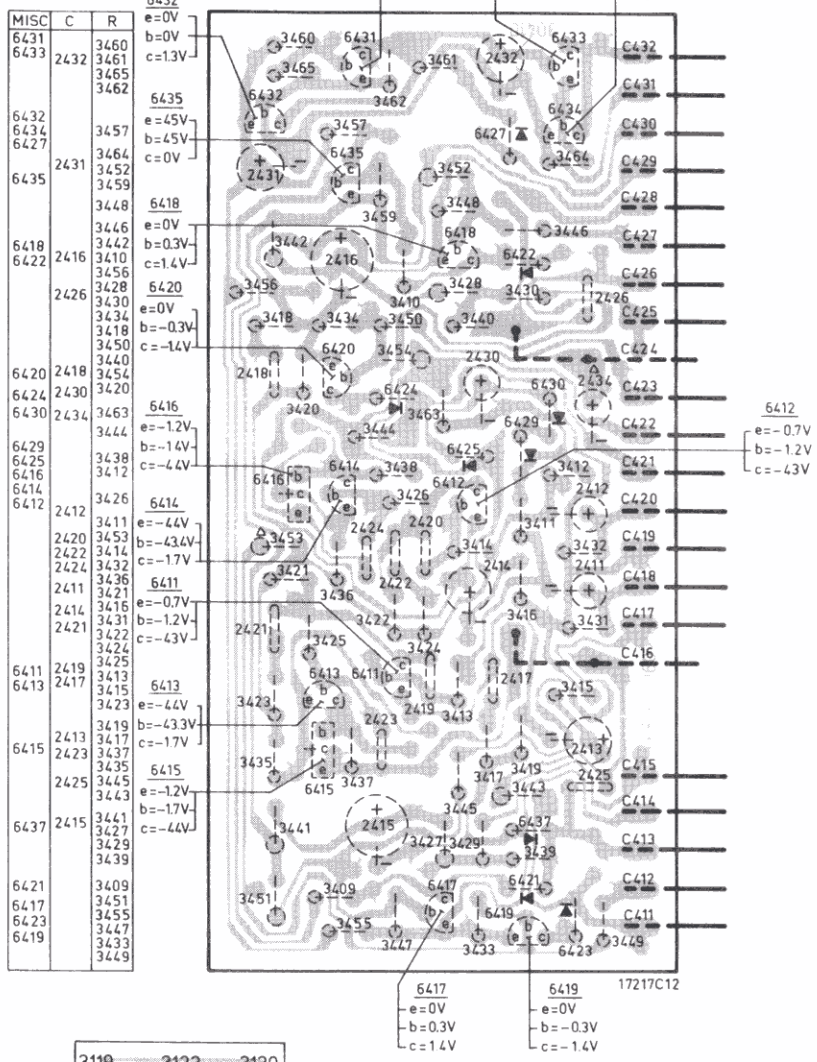
3511 3512 3521

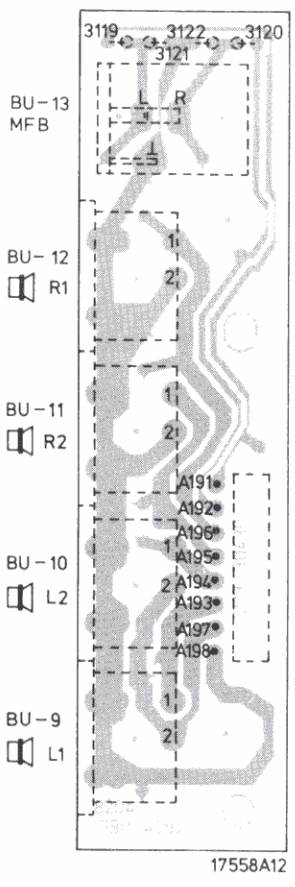




17978D12



17217C12



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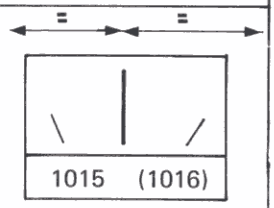
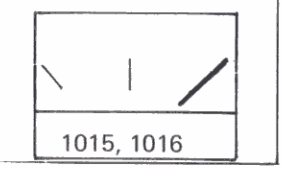
1 kHz (< 250 mV)	BU-3	BU-9 (L) (BU-12) (R) 2,83 V	3105 (3106) 
1 kHz (< 250 mV)	BU-3	BU-9 (L) BU-12 (R) 25 V	3109 

6412
e=-0.7V
b=-1.2V
c=-43V

(GB)

Adjustment output amplifier

Direct current adjustment – Left (Right).
With the aid of R3527 (3523) adjust the quiescent current through the output transistors to 50 mA ± 5 %.
To be measured with a non-earthed mV-meter connected across the resistors 3505, 3507 (3506, 3508).
The deflection shall then be 24 mV ± 5 %.

Inspection DC protection

- Connect a resistor of 270 kΩ between the negative pole of C2411 and point +1 of the power supply. The relay shall then be released.
- Connect a resistor of 220 kΩ between the negative pole of C2414 and point −1 of the power supply. The relay shall then be released.

(F)

Réglage de l'amplificateur de sortie

Ajustage courant continu – gauche (droit).
Par action sur R3527 (3523) régler le courant de repos à travers les transistors de sortie pour avoir 50 mA ± 5 %.
A mesurer à l'aide d'un mV-mètre isolé de la terre, connecté aux bornes des résistances 3505, 3507 (3506, 3508).
La déviation doit être alors de 24 mV ± 5 %.

Contrôle de la protection contre le courant continu

- Connecter une résistance de 270 kΩ entre le pôle négatif de C2411 et le point +1 de l'alimentation. Ceci fait, le relais doit se décoller.
- Connecter une résistance de 220 kΩ entre le pôle négatif de C2412 et le point −1 de l'alimentation. Ceci fait, le relais doit se décoller.

(I)

Regolazione dell'amplificatore d'uscita

Regolazione della corrente di riposo canali sinistro (destro).
Per mezzo di R3527 (3523) regolare la corrente di riposo attraverso i transistor d'uscita a 50 mA ± 5 %.
Questa misura deve essere fatta con il mVoltmetro, senza il collegamento alla presa di terra, ai capi delle resistenze 3505, 3507 (3506, 3508).
La variazione può quindi essere di 24 mV ± 5 %.

Controllo del circuito di protezione in DC

- Collegare una resistenza di 270 kΩ tra il polo negativo di C2411 e il punto +1 dell'alimentazione. il relè sarà quindi sganciato.
- Collegare una resistenza di 220 kΩ tra il polo negativo di C2412 e il punto −1 dell'alimentazione. Il relè sarà quindi sganciato.

(NL)

Afregelen eindversterker

Gelijkstroominstelling – L(R).
De ruststroom door de eindtransistoren moet ingesteld worden met R3527 (3523) op 50 mA ± 5 % te meten met een niet geaarde mV-meter aangesloten over de weerstanden 3505, 3507 (3506, 3508).
De uitslag moet dan 24 mV ± 5 % zijn.

Controle DC beveiliging

- Sluit een weerstand van 270 kΩ aan tussen de – (min pool) van C2411 en de +1 voeding. Het relais moet dan afvallen.
- Sluit een weerstand van 220 kΩ aan tussen de – van C2412 en de −1 voeding. Het relais moet dan afvallen.

(D)

Abgleich des Endverstärkers

Gleichstromeinstellung – L(R).
Der Ruhestrom durch die Endtransistoren soll mit R3527 (3523) auf 50 mA ± 5 % eingestellt werden; zu messen mit einem nicht-geerdeten mV-Meter, über die Widerstände 3505 und 3507 (3506 und 3508) angeschlossen.
Der Ausschlag soll dann 24 mV ± 5 % sein.

Kontrolle der Gleichspannungssicherung

- Einen Widerstand von 270 kΩ zwischen Minusleiter von C2411 und +1-Stromversorgung anschliessen. Das Relais soll dann abfallen.
- Einen Widerstand von 220 kΩ zwischen Minusleiter von C2412 und −1-Stromversorgung anschliessen. Das Relais soll dann abfallen.

(S)

Inställning av slutsteg

Ställ in viloströmmen för vänster (höger) kanal med hjälp av R3527 (3523) så att den blir 50 mA ± 5 % genom sluttransistorerna. Mät med en ickejordad mV-meter över resistorerna 3505, 3507 (3506, 3508). Spänningen skall vara 24 mV ± 5 %.

Kontroll av DC-skydd

- Anslut en resistor på 270 kΩ mellan den negativa polen på C2411 och +1 på nätspänningsaggregatet. Härvid skall reläet lösa ut.
- Anslut en resistor på 220 kΩ mellan den negativa polen på C2412 och −1 på nätspänningsaggregatet. Härvid skall reläet lösa ut.

-TS-		
6051-6054	BC559B	4822 130 44358
6301,6302	BC559	4822 130 40963
6303,6304	BC548B	4822 130 40937
6305,6306	BC548	4822 130 40938
6307,6308	BC558	4822 130 40941
6411,6412	BC557B	4822 130 44568
6413,14,17,18	BC449A	4822 130 41341
6415,6416	BD140	4822 130 40824
6419,6420	BC558	4822 130 40941
6431,6432	BC548	4822 130 40938
6433	BC548C	4822 130 44196
6434	BC337	4822 130 40855
6435	BC557	4822 130 44256
6501-6502	BC548B	4822 130 40937
6403-6506	BD139/140	4822 130 40849
6507,6509	BD317	4822 130 41338
6508,6510	BD318	4822 130 41339
6519	BD677	5322 209 85451

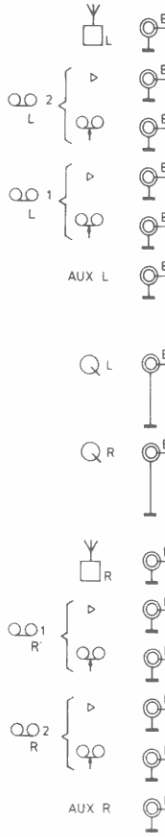
-D-		
6001		4822 130 31137
6055,6056 6061,6062	BAW62	4822 130 30613
6057-6060	BA315	4822 130 30843
6063-6068	GL-2AR-1	4822 130 31137
6421-6430	BAW62	4822 130 30613
6515	BAW62	4822 130 30613
6516	BZX79/C20	5322 130 34499
6517,6518	BY225/200	4822 130 50312
6522	BZX79/C22	4822 130 34441

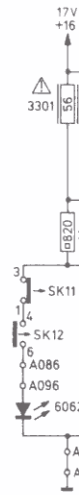
5001		4822 146 80085

-R-		
3105,3106	10K	4822 100 10035
3109	470 Ω	4822 100 10038
3110	Safety 56 Ω	4822 111 30412
3116,3117	Safety 1,6 Ω	4822 111 30471
3301	Safety 56 Ω	4822 111 30412
3009	2x100+22K	4822 102 10145
3337,3338	Metal res. 330K-2%	4822 116 51207
3339,3340	Metal res. 47K-2%	5322 116 54671
3343,3347	2x47K	4822 102 30313
3435,3436	Safety 10 Ω	4822 111 30405
3443,3444	Safety 56 Ω	4822 111 30029
3501-3504	Safety 150 Ω	4822 111 30156
3505-3508	W.W.-3W-0.24 Ω	4822 115 40216
3511-3512	W.W.-4W- 470 Ω	4822 110 43098
3521	Safety 130 Ω	4822 111 50405
3523	Safety 22E	4822 111 50346
3527-3528	1K	4822 100 10037
3532-3533	Safety 1 Ω	4822 111 30215
3541-3544	Safety 5.6 Ω	4822 111 30435

-C-		
2001-2002	10,000 uF - 50 V	4822 124 70319
2071,2072	22 uF - 40 V	4822 124 40223
2076	22 nF	4822 122 30103
2321,2311	82 nF	4822 121 41158
2335,2323	10 nF	4822 121 41134
2327,2338	47 nF	4822 121 40239
2419-2420	56 pF - 2%	4822 122 31074
2423-2424	8.2 pF - 2%	4822 122 31052
2501-2502	100 n - 100 V	4822 121 40334
2503-2506	250 V - 47 n	4822 121 40239
2512	100 n - 250 V	4822 121 40518
2513-2514	470 n - 100 V	4822 121 40438

-Miscellaneous-		
1010-1011	6,3 V - 250 mA	4822 134 40007
1015		4822 347 10244
1016		4822 347 10245
1051		4822 218 10124
1054,1055	6,3 AT	4822 253 30031
1502-1503	4 AT	4822 253 30038
1052-1053	Relay	4822 280 70166





(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

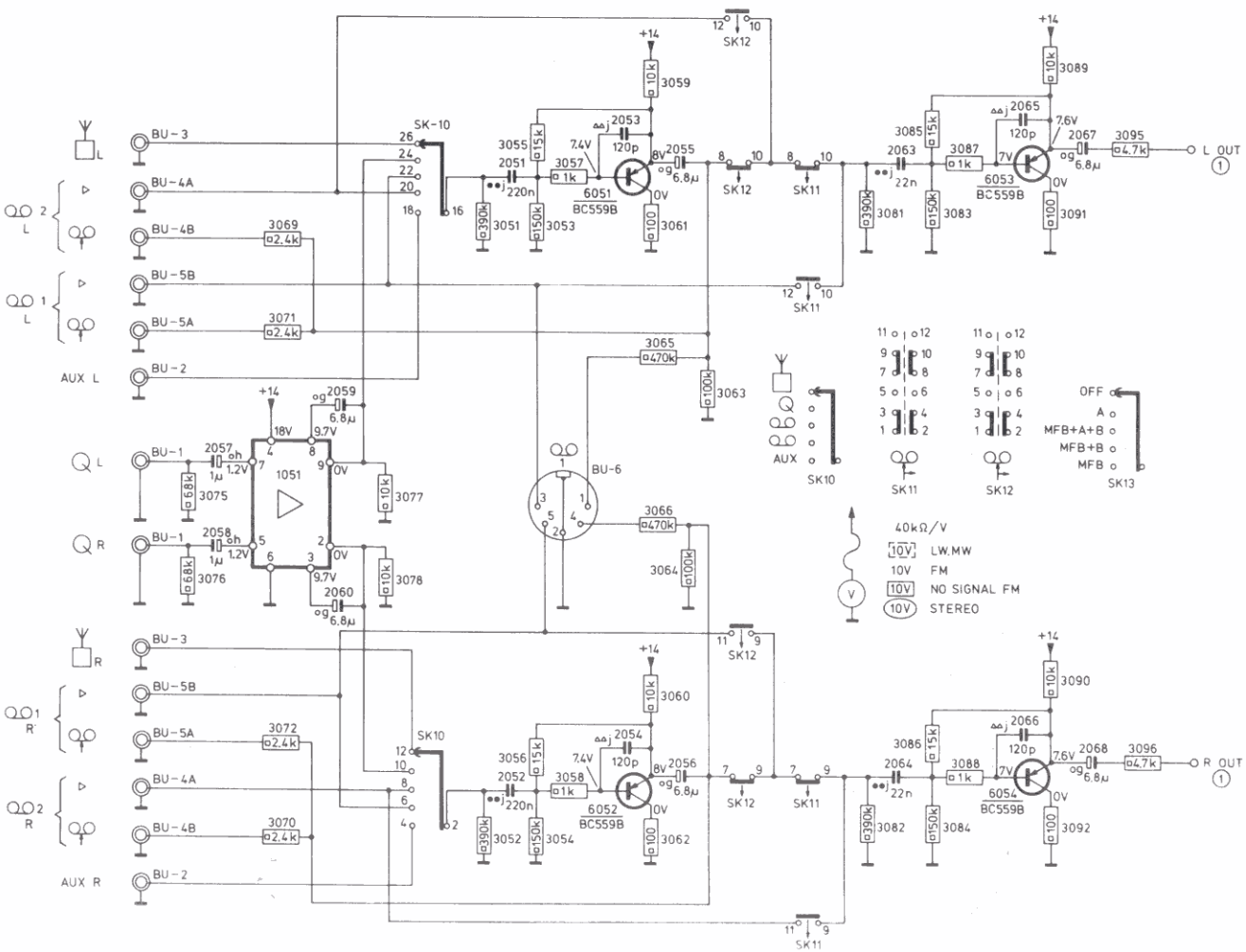
(I)

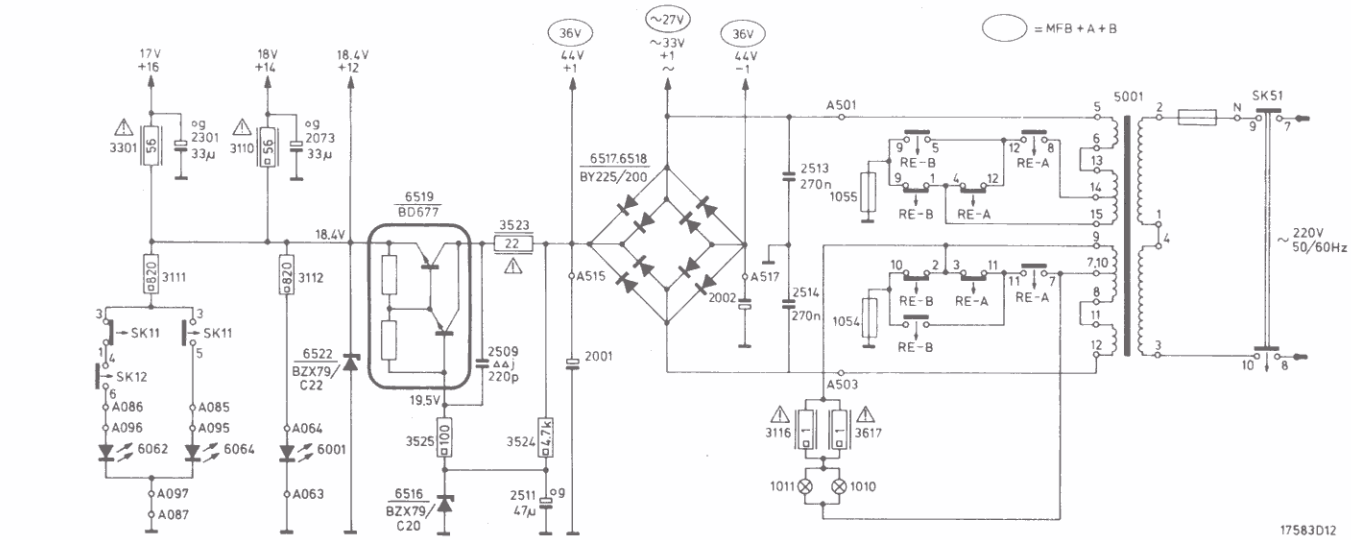
Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

(S)

Säkerhetsbestämmelserna kräver att varje reparation skall utföras korrekt med hänsyn till ursprunglig placering av komponenter, ledningar etc. och med användning av föreskrivna reservdelar.

MISC.	6062	6064.6522.1051.6001	6516.6519	6517.6051.6052.6518	1011	1055.1054.1010	6053.6054 5001	MISC.
C	2301.2057.2058 2073	2509.2511.2051.2052.2001.2053.2054.2002.2055.2056.2513.2514	2063.2064	2065.2066.2067.2068	C
R	3301.3111.3075.3076.3110.3069···3072.3112.3077.3078.3523···3524.3051···3058	3059···3066 3116 3617	3081···3088	3089···3092.3095.3096	R





20	30		60
	66	72	
	71	69	
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	3119	3120	
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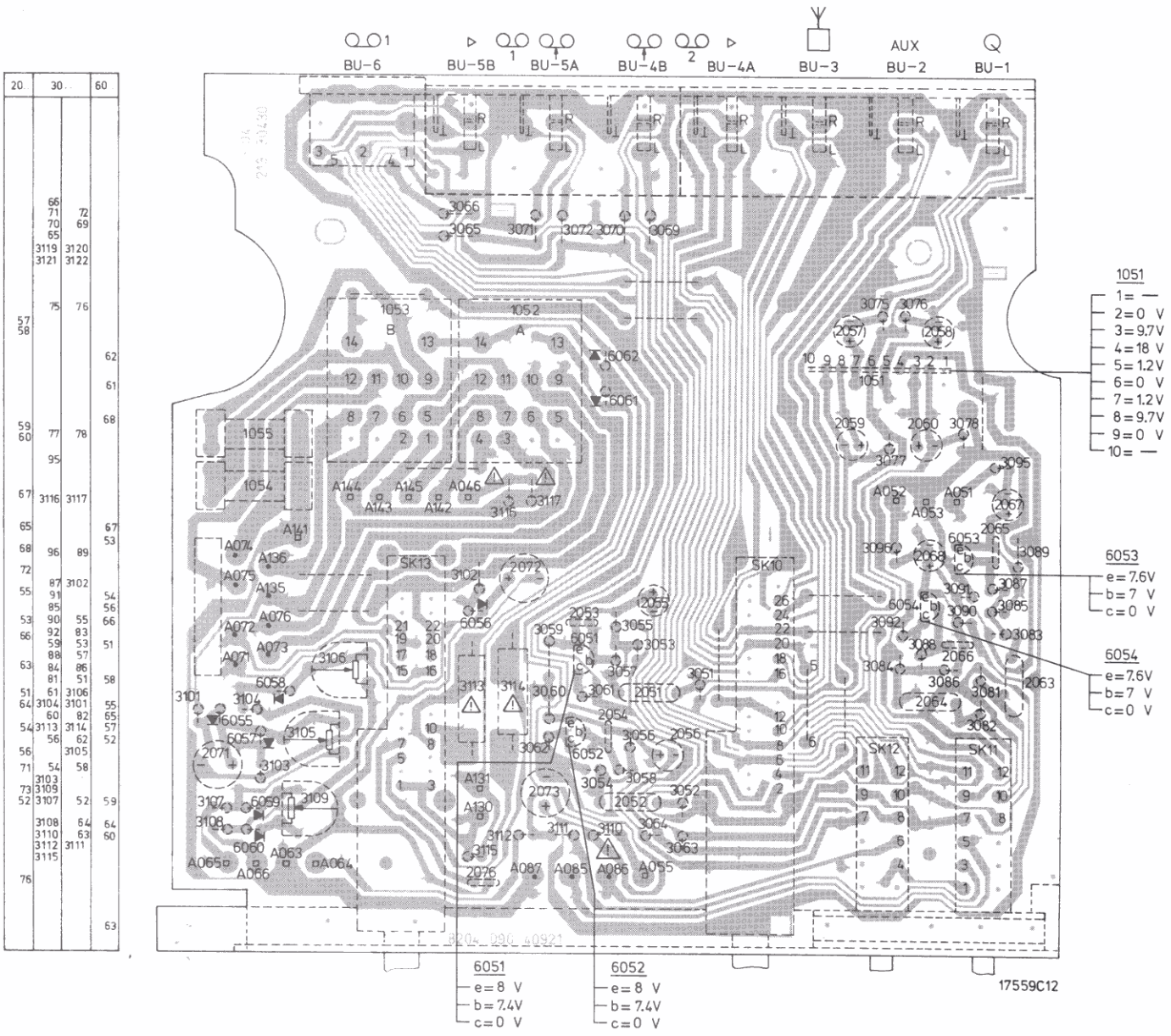
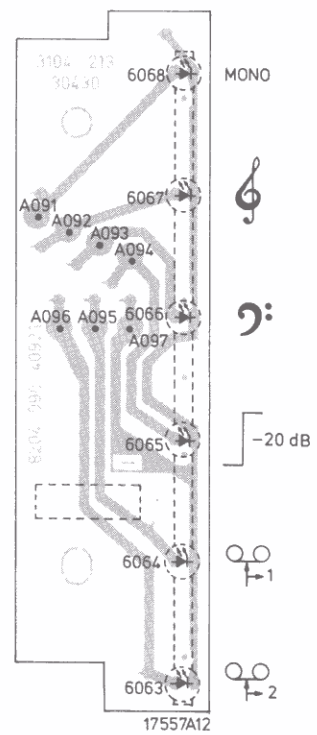
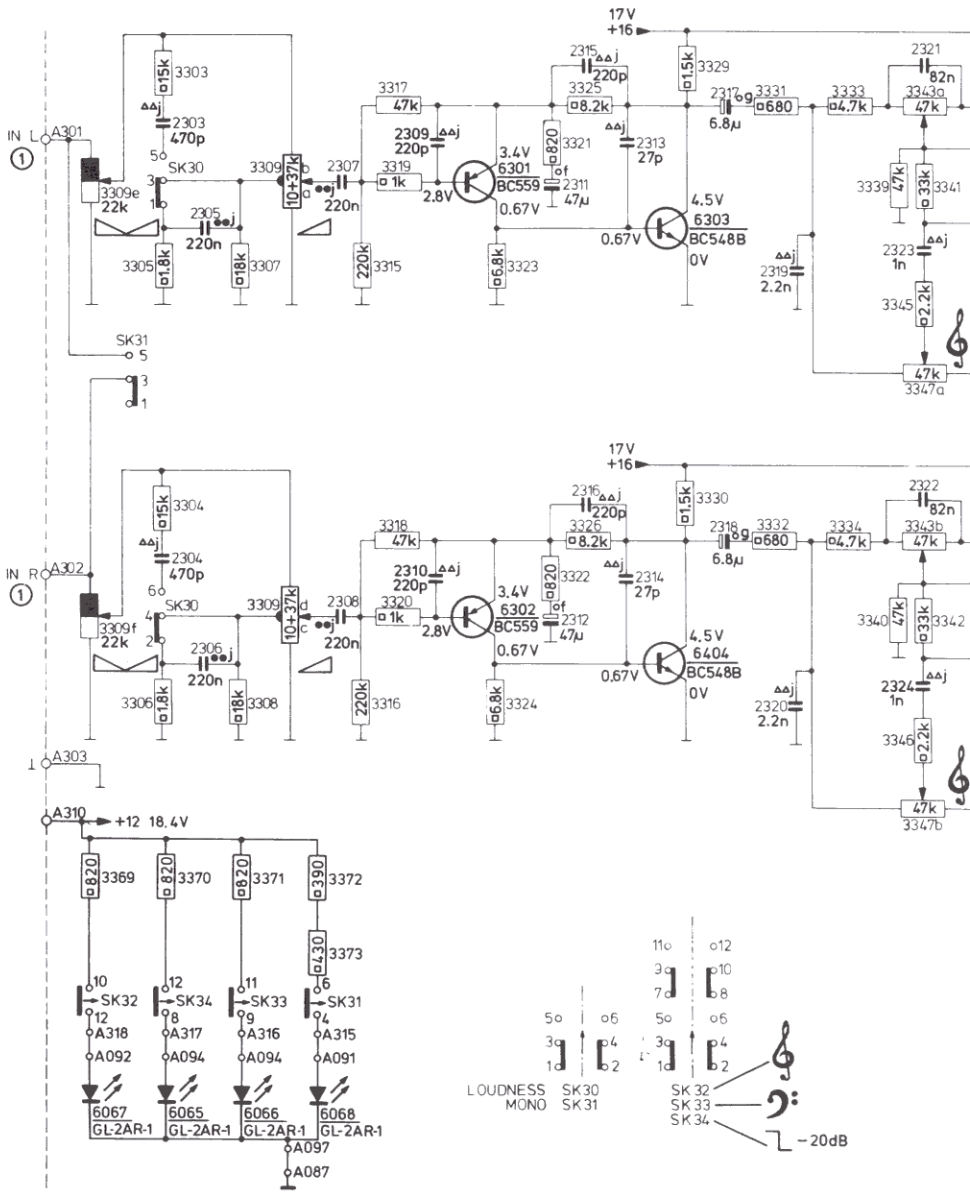
66	92	83	
	59	53	51
	88	57	
63	84	86	
	81	51	58
51	61	3106	
64	3104	3101	55
	60	82	65
54	3113	3114	57
	56	62	52
56		3105	
71	54	58	
73	3103		
52	3109		
	3107	52	59
	3108	64	64
	3110	63	60
	3112	3111	
	3115		
76			
			63


BU-6
BU-5B
BU-5A
BU-4B
BU-4A
BU-3
AUX
BU-2
BU-1
1051
1= —
2= 0 V
3= 9.7V
4= 18 V
5= 1.2V
6= 0 V
7= 1.2V
8= 9.7V
9= 0 V
10= —
6053
e= 7.6V
b= 7 V
c= 0 V
6054
e= 7.6V
b= 7 V
c= 0 V
6051
e= 8 V
b= 7.4V
c= 0 V
6052
e= 8 V
b= 7.4V
c= 0 V
17559C12

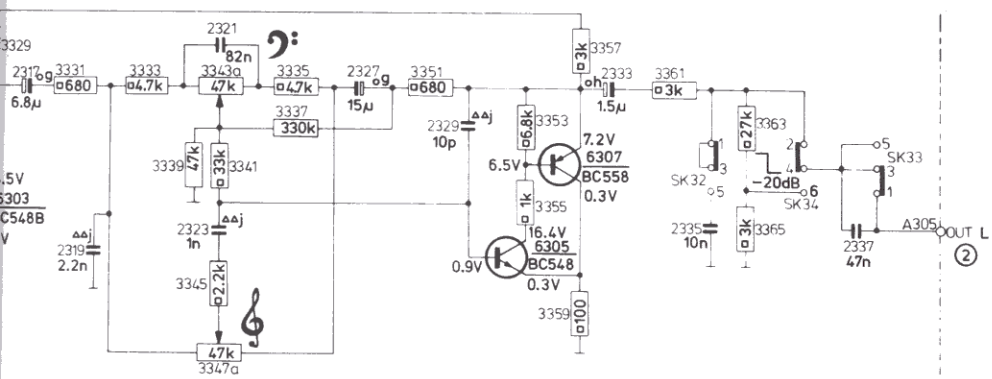

MONO
−20 dB
17557A12

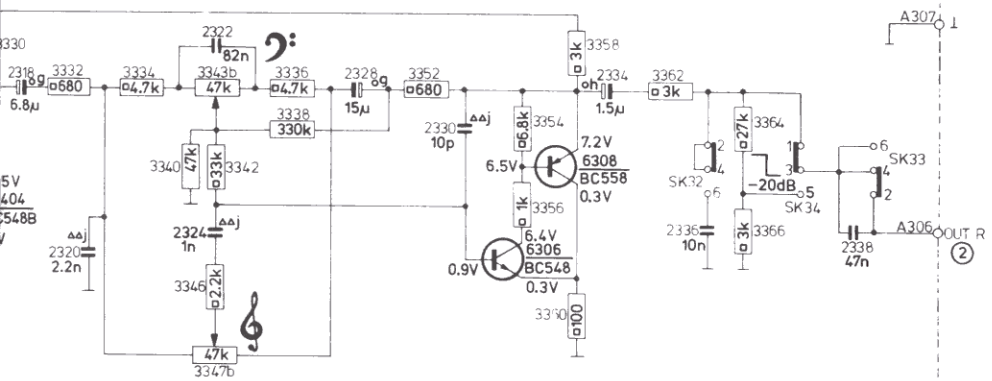
		6301.6302		6305.6304	
2303÷2306	2307÷2310	2311÷2316	2317÷2320	2321÷2424	
3303÷3309	3315÷2320	3321÷3326	3329÷3332	3345÷3347.3333÷3340.	



| MISC | | | | |

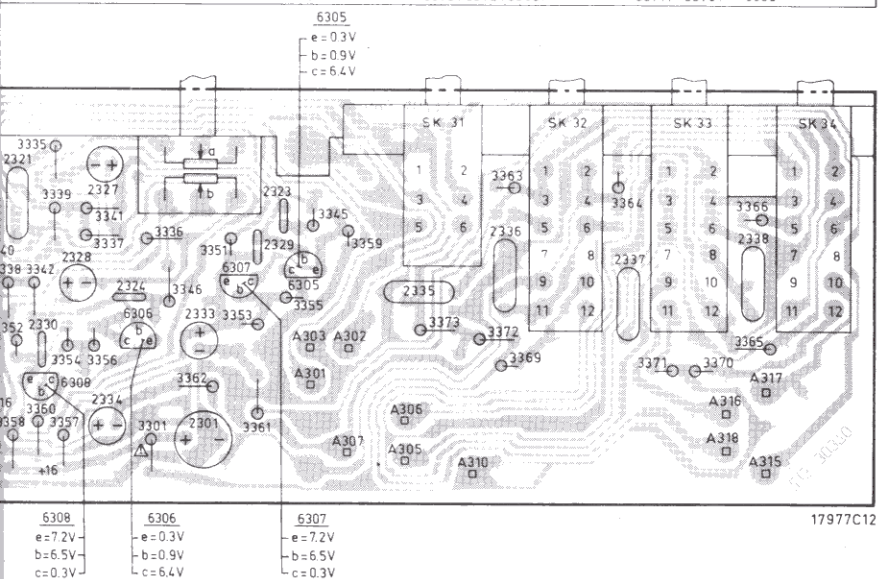
6304	6305÷6308					
2317÷2320	2321÷2424	2327÷2330		2333.2334	2335.2336	2337.2338
3329÷3332	3345÷3347.3333÷3340.3341÷3345		3351÷3356	3357÷3362	3363÷3366	





17556D12

6308	6306	6307	6305	SK 31	SK 32	SK 33	SK 34
2321 2328	2327 2324	2329	2323	2335	2336	2337	2338
2330	2334	2301	2333				
5 3337	3342	3336	3346 3347 3351 3355 3345 3359	3363	3364	3366	
52 3360	3356	3358	3354 3301 3362 3353 3361	3373	3372 3369	3371	3370 3365



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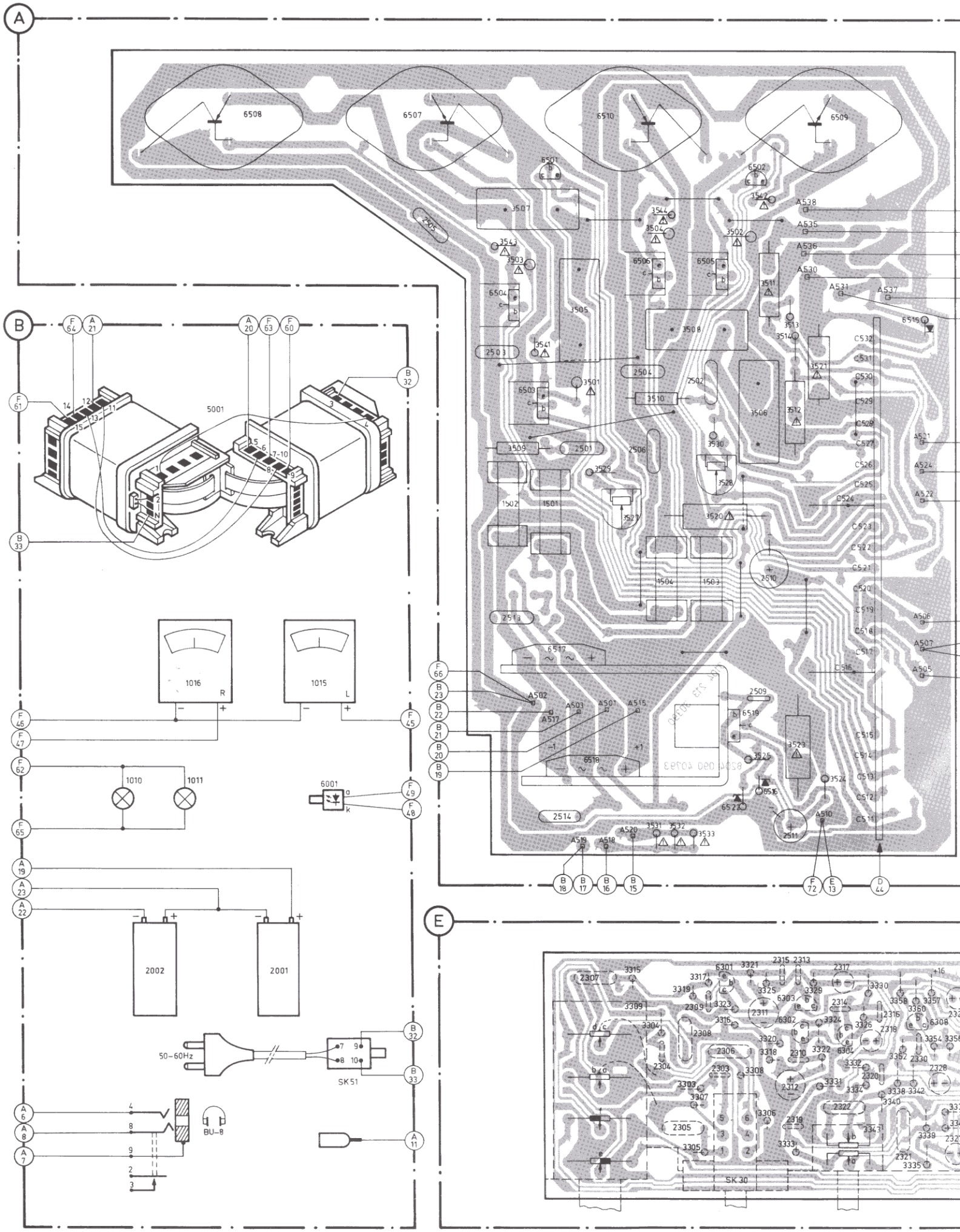
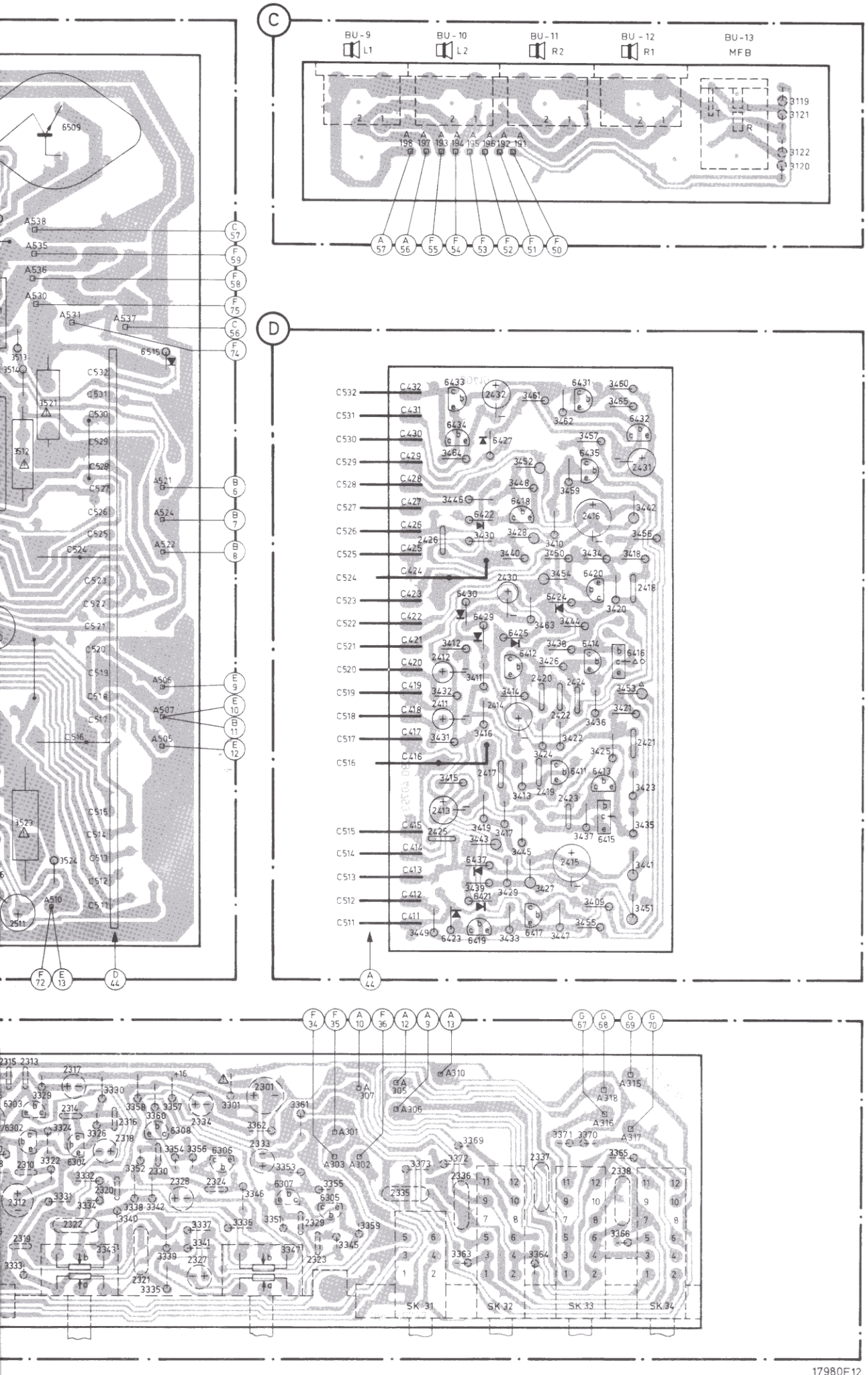

A
B
E
6508
6507
6510
6509
5001
1016
R
1015
L
1010
1011
6001
2002
2001
50–60Hz
SK51
BU–8
SK 30

CS 67 076



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6510				
6509				
			3122	
			3120	
6501				
6502				
				3542
				3507
				3544
	2505			3504
				3502
				3543
6506				3503
6505				
6504			3505	
6515			3513	
			3508	
			3514	
6433			3541	3460
6431	2503	2432	3521	3461
				3465
				3462
6432	2504		3501	
6434				
6427			3510	3457
6503			3512	
6435			3506	3452
5001		2431		
			3530	3459
	2501		3509	3448
	2506			3446
6418				3442
6422		2416	3529	
			3528	3410
		2426		3428
				3430
1502				3456
1501			3527	3440
6420			3520	3450
1504		2430		3434
1503		2418		3418
6430				3454
6424				3420
6429				3463
				3444
6425				3412
6414				3438
		2412		
6416				3426
6412		2420		3411
	2513	2424		3432
6002		2422		3414
5001		2411		3453
6517				3421
				3436
		2414		3415
		2421		3431
				3424
				3425
	2509			
6411			2417	
6413				3415
6519			2419	3413
			2423	3423
			2413	
6415				3419
				3417
			2425	3435
6518				3437
1013				3443
1011			2415	3445
6437				3441
6516				3439
6522	2514			3429
6421				3427
6417	2511			3409
6423				3451
6419				3455
1401				3449
				3433
				3447
		2002		
		2001		
6301	2315	2317	3321	3330
	2313	2301	3315	3358
	2307		3317	3357
		2334	3325	3301
6303	2309	2314	3329	3360
	2311	2316	3319	3361
			3323	3362
6308	2308		3309	3324
6302		2318	3316	3326
6304		2333	3304	3365
6306	2306	2330	3320	3352
	2310	2337	3318	3356
SK51	2304	2328	3322	3369
6307	2303	2324	3308	
6305	2312	2320	3331	3373
		2335	3303	3332
		2336	3334	3346
	2322	2338	3307	3338
		2329	3306	3342
BU-8	2319	2323		3340
	2305		3343	3337
	2321	2327	3333	3336
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SK34				3363
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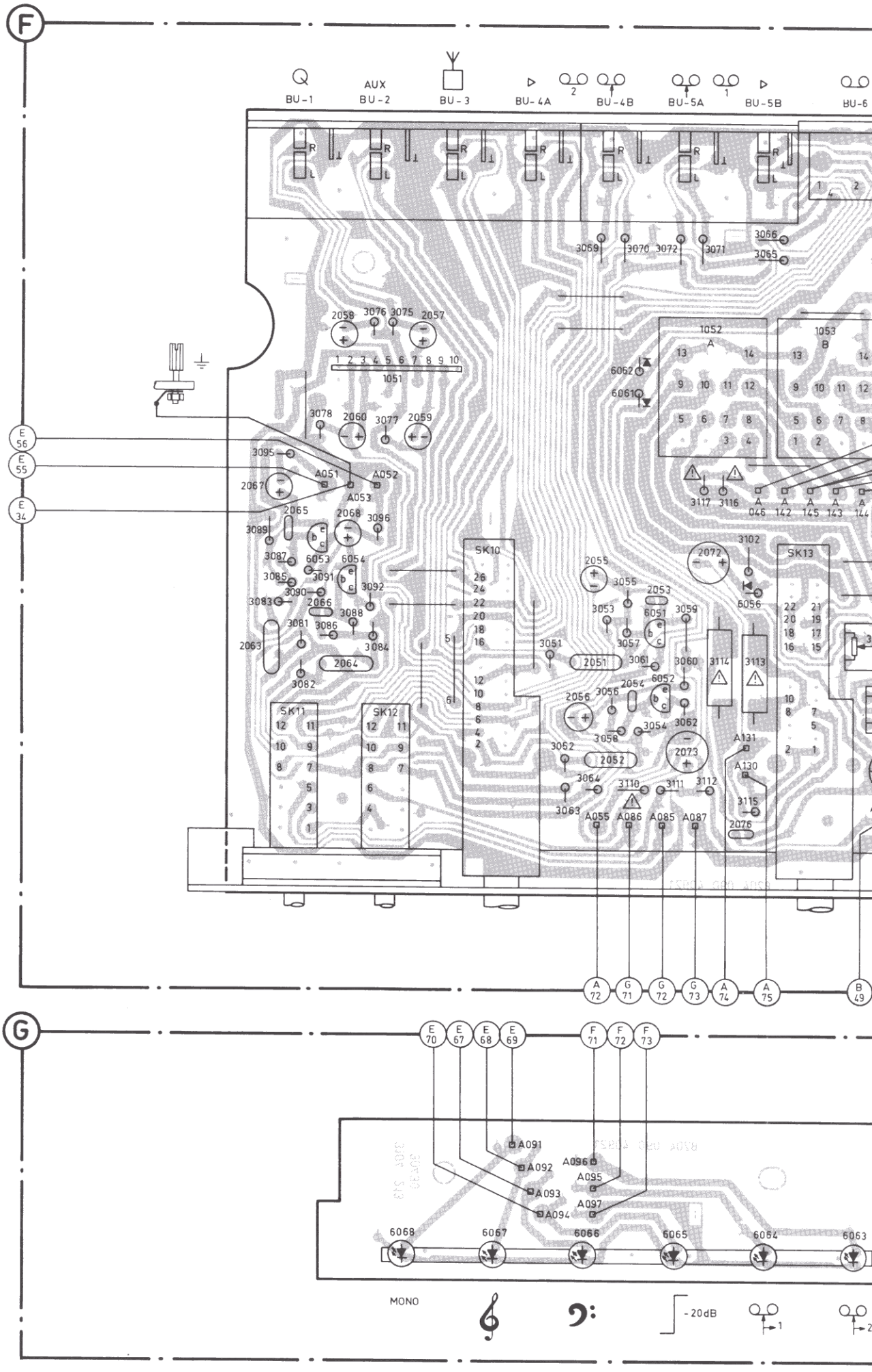
F
BU-1
AUX
BU-2
BU-3
BU-4A
BU-4B
BU-5A
BU-5B
BU-6
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SK10
SK11
SK12
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A085
A086
A087
A130
A131
A046
A142
A145
A143
A144
2076
E 56
E 55
E 34
A 72
G 71
G 72
G 73
A 74
A 75
B 49
G
E 70
E 67
E 68
E 69
F 71
F 72
F 73
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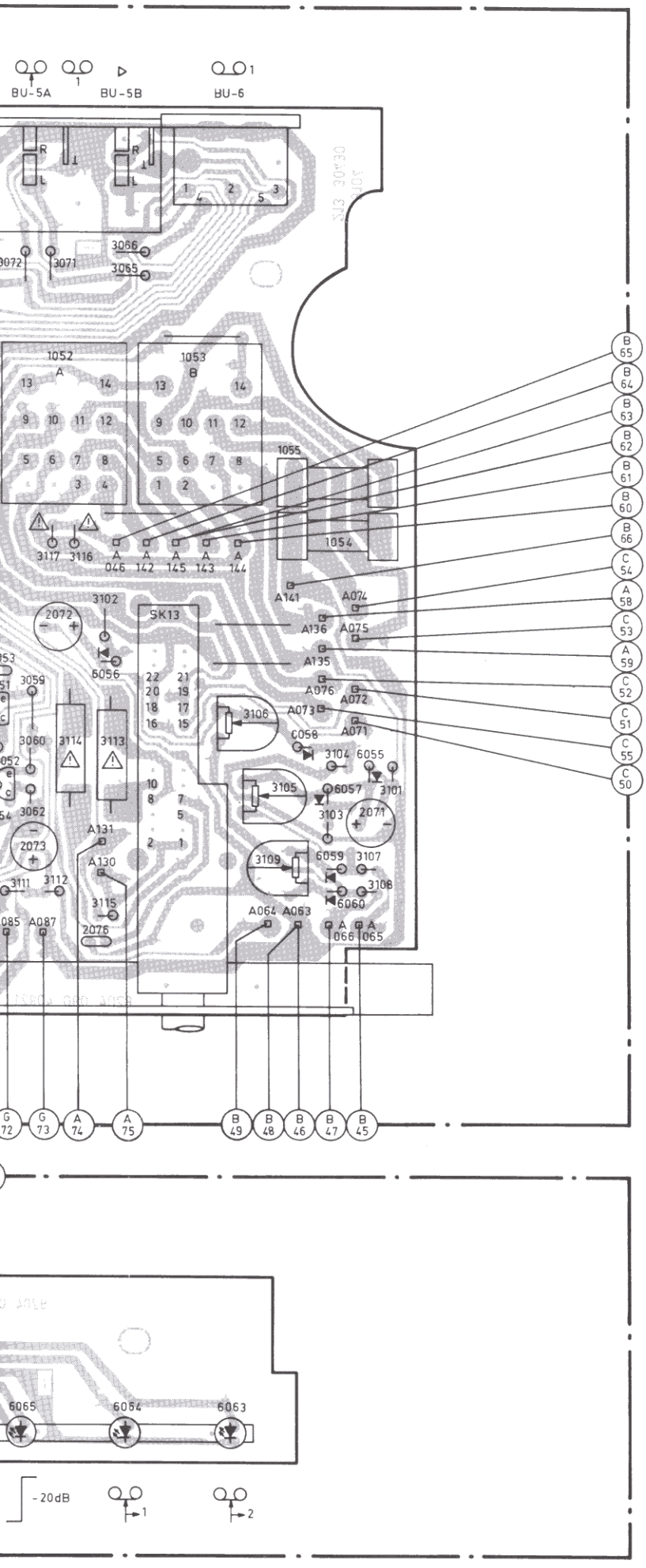
MONO
- 20dB



MISC	C	R	
BU-1 ⋮ BU-6			
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		3070	3071
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1052	2058	3075	3076
1053	2057		
6062			
1051			
6061			
	2059	3078	3077
	2060		
1055			
		3095	
1054	2067	3117	3116
	2065		
	2068	3096	
6053		3089	3102
SK10			
SK13	2072		
6054	2055	3087	
		3085	3091
		3055	
	2053		3092
		3090	3083
6056	2066		
6051		3088	3053
		3059	3081
		3086	3084
	2063	3057	3106
6058		3151	3061
6055	2064	3060	3114
6052	2051	3104	3113
		3082	3104
6057	2056	3056	3101
SK11		3105	3062
SK12	2071	3054	3101
			3103
	2073		
6059	2052	3109	3107
		3064	3110
		3111	3112
6060		3108	
		3063	3115
2076			
6063 ⋮ 6068			

17979D12

401	4822 256 90295
402	4822 466 70371
403	4822 255 10151
406	4822 466 70374
407	4822 426 50373
407/28	4822 426 50386
408	4822 413 51047
409	4822 413 51046
411	4822 413 40857
412	4822 413 40857
413	4822 413 51045
414	4822 413 51045
416	4822 276 10579
417	4822 267 30319
419	4822 410 22231
421	4822 505 10571
423	4822 492 40658
424	4822 276 10692
425	4822 410 22232
434	4822 276 20254
436	4822 273 80231
437	4822 276 40248
438	4822 410 22232
442	4822 410 30203
445	4822 492 61976
446	4822 426 40162
447	4822 492 62176
448	4822 492 60063
452	4822 532 60653
453	5322 466 90433
454	4822 267 30318
456	4822 267 30264
457	4822 267 30264
458	4822 267 30264
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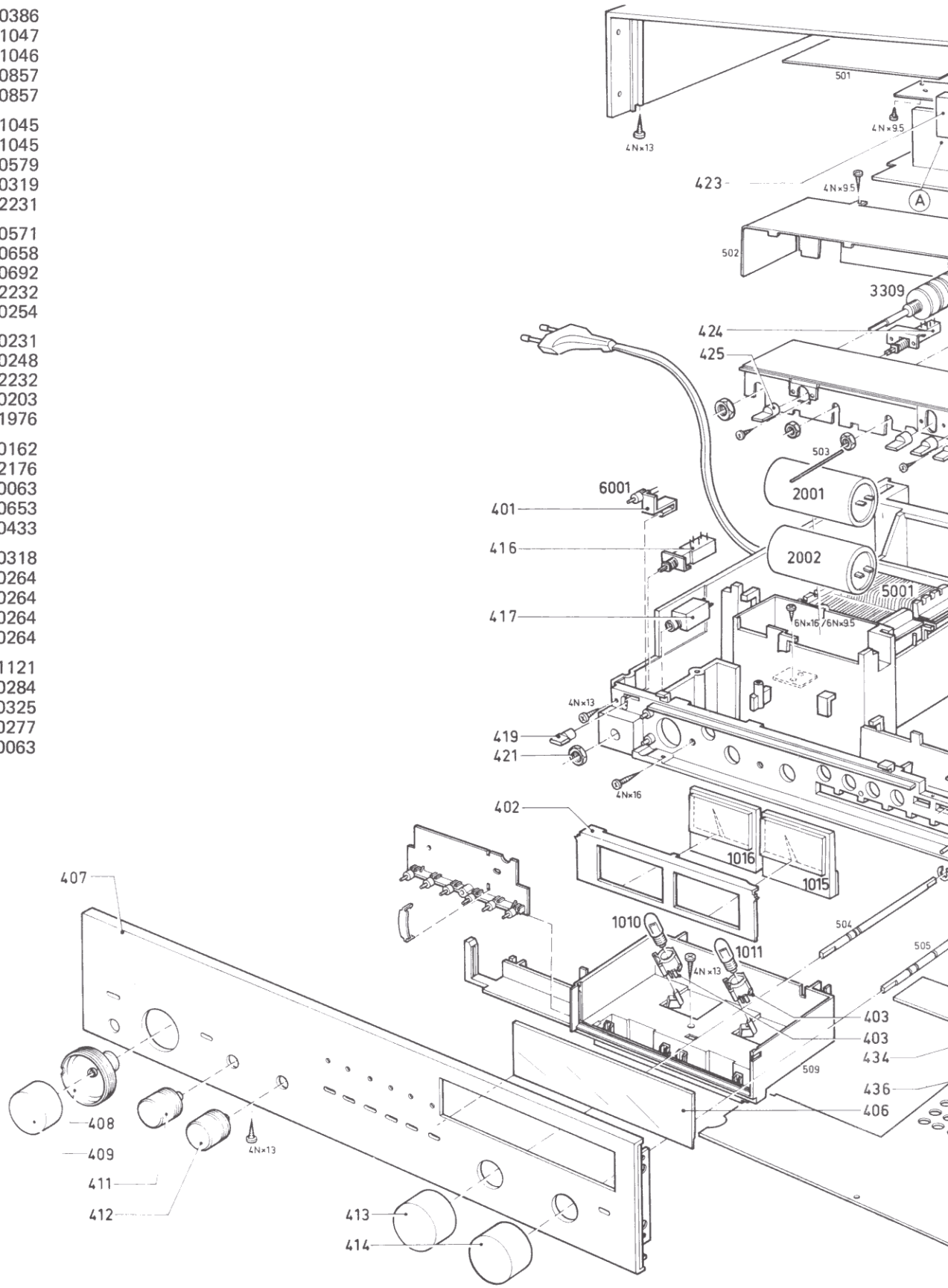

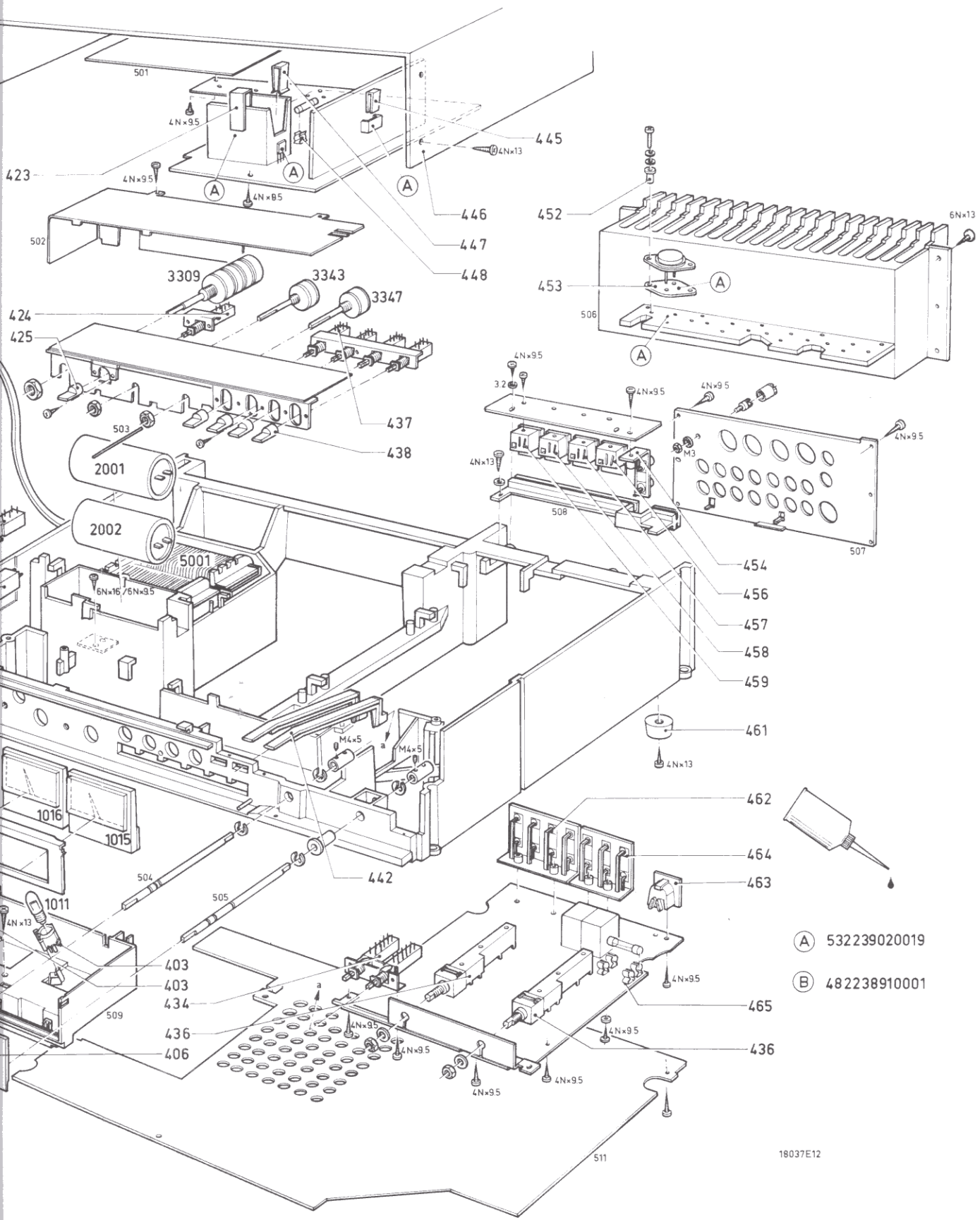

A 532239020019

B 482238910001